

Worksheet Triangle Inequalities

Name _____

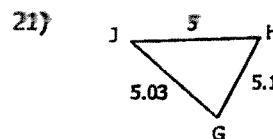
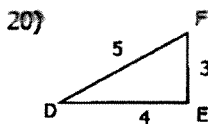
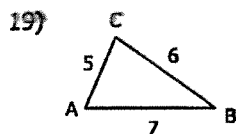
Decide whether each set of numbers is a triangle.

- | | |
|------------------|-------------------|
| 1) 15, 12, 9 | 2) 23, 16, 7 |
| 3) 20, 10, 9 | 4) 8.5, 6.5, 13.5 |
| 5) 47, 28, 70 | 6) 28, 41, 13 |
| 7) 5, 10, 15 | 8) 9, 40, 41 |
| 9) 12, 2.2, 14.3 | 10) 6, 9, 16 |

The measures of two sides are given. Between what two numbers must the third side fall.

- | | |
|---------------|---|
| 11) 9 and 15 | 11) Write an inequality to represent your answer: _____ |
| 12) 11 and 20 | 12) Write an inequality to represent your answer: _____ |
| 13) 23 and 14 | 13) Write an inequality to represent your answer: _____ |
| 14) 5 and 8 | 14) Write an inequality to represent your answer: _____ |
| 15) 15 and 18 | 15) Write an inequality to represent your answer: _____ |
| 16) 22 and 34 | 16) Write an inequality to represent your answer: _____ |
| 17) 47 and 71 | 17) Write an inequality to represent your answer: _____ |
| 18) 21 and 47 | 18) Write an inequality to represent your answer: _____ |

Name the largest and the smallest angle.



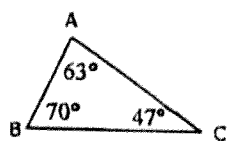
List the angles of $\triangle ABC$ from the smallest to the largest.

22) $\overline{AB} = 17$, $\overline{BC} = 21$, $\overline{AC} = 18$

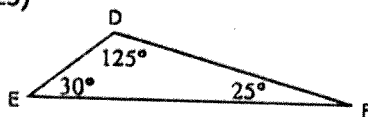
23) $\overline{AB} = 15$, $\overline{AC} = 16$, $\overline{BC} = 17$

List the sides in order, underline the side with the shortest length.

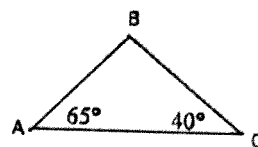
24)



25)



26)



List the sides of $\triangle ABC$ from the longest to shortest.

27) $m\angle A = 46^\circ$, $m\angle B = 30^\circ$

28) $m\angle C = 101^\circ$, $m\angle B = 70^\circ$

29) $m\angle A = 59^\circ$, $m\angle C = 61^\circ$

Find the value of x and list the sides of $\triangle ABC$ in order from shortest to longest if the angles have the indicated measures. (Hint: Find the angle measures first, then decide which sides are the longest)

30) $m\angle A = (9x + 29)^\circ$, $m\angle B = (93 - 5x)^\circ$, and $m\angle C = (10x + 2)^\circ$.

31) $m\angle A = (9x - 4)^\circ$, $m\angle B = (4x - 16)^\circ$, and $m\angle C = (68 - 2x)^\circ$.

32) $m\angle A = (12x - 9)^\circ$, $m\angle B = (62 - 3x)^\circ$, and $m\angle C = (16x + 2)^\circ$.

33) $m\angle A = (5x + 2)^\circ$, $m\angle B = (6x - 10)^\circ$, and $m\angle C = (x + 20)^\circ$.

34) $m\angle A = (10x)^\circ$, $m\angle B = (5x - 17)^\circ$, and $m\angle C = (7x - 1)^\circ$.

Answer the following questions.

35) Draw $\triangle DEA$ with a median \overline{EG} .

36) Draw $\triangle JKH$ with an altitude \overline{JP} .

37) Find the value of x .

